REMARKS

I. INTRODUCTION

In response to the Office Action dated September 6, 2002, please consider the following remarks.

II. STATUS OF CLAIMS

Claims 1-8, 10-21, and 23-32 are pending in the application.

On October 15, 1998, a first Office Action was mailed. The first Office Action rejected claims 1-6, 11, 12, and 13-30 under 35 U.S.C. § 102 as being anticipated by United States Patent No. 5,598,276, issued to Cookson et al. Claims 7-8 were rejected under 35 U.S.C. § 103 as being unpatentable over Cookson and further in view of United States Patent No. 5,767,894, issued to Fuller et al. Claims 9-10 were rejected under 35 U.S.C. § 103 as being unpatentable over Cookson in view of Fuller et al. and further in view of Fielding et al.

On January 15, 1999, the Applicants filed Remarks in response to these rejections, leaving the claims unamended.

On March 29, 1999, a Final Office Action was mailed, maintaining the rejections of the first Office Action.

On May 28, 1999, the Applicants filed an Amendment under 37 C.F.R. § 1.116, amending claims 1, 13, 19, 24, 28, 29, and 30.

On June 22, 1999, an Advisory Action was mailed, refusing to enter the amendments because they would require an extended search.

On June 28, 1999, the Applicants filed a Continued Prosecution Application requesting that the unentered amendments be entered.

On August 30, 1999, a first Office Action was mailed. The first Office Action rejected claims 1-7, and 12 under 35 U.S.C. § 102(a)(e) as unpatentable over U.S. Patent 5,790,802, issued to Van Loom et al. Claims 8-11 were rejected under 35 U.S.C. § 103 as unpatentable over Van Loom in view of U.S. Patent No. 5,893,908, issued to Cullen et al. Claims 13-30 were rejected under analogous rationale to the rejections of claims 1-12.

On November 24, 1999, the Applicants filed an Amendment canceling claims 9 and 22, amending claims 1, 10, 19, and 29, and adding claims 31 and 32.

On February 18, 2000, a second Office Action was issued. The second Office Action rejected claims 1-8, 10-21, and 23-32 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,790,802, issued to Heath et al. in view of U.S. Patent No. 5,959,543, issued to LaPorta et al. Claims 31 and 32 were indicated as allowable.

On May 17, 2000, the Applicants filed a communication leaving the claims unamended and arguing that the claims are patentable over the references cited in the second Office Action mailed February 18, 2000.

On August 15, 2000, a third Office Action was mailed. The third Office Action rejected claims 1-8, 10-21, and 23-32 as unpatentable over the earlier cited Van Loom reference in view of U.S. Patent No. 4,912,637, issued to Sheedy et al.

On November 15, 2000, the Applicants filed an Amendment amending claims 1 and 13 and arguing the claims are allowable over the cited references.

On December 21, 2000, a Final Office Action was mailed, maintaining the rejection of the third Office Action mailed August 15, 2000.

On March 21, 2001, the Applicants filed a Notice of Appeal.

On May 21, 2001, the Applicants filed an Appellant's Brief.

On August 28, 2001, the Final Office Action was vacated. The Final Office Action indicted that claims 2-8 and 28 were allowable, but that claims 1, 10-21, 23-27, and 29-32 were rejected under 35 U.S.C. § 103 as being unpatentable U.S. Patent No. 5,953,506, issued to Kalra (hereinafter referred to as the Kalra reference) in view of U.S. Patent No. 6,029,200, issued to Beckerman (hereinafter referred to as the Beckerman reference).

On November 28, 2001, the Applicants filed Remarks under 37 C.F.R. § 1.111. The claims remained unamended.

On March 27, 2002, a non-Final Office Action was mailed. The non-Final Office Action (which erroneously indicates that it is in response to Applicants Request to Reconsider filed January 11, 2002) indicated that claims 2-8 and 28 were allowable, but rejected claims 1, 10-21, 23-27, and

29-32 under 35 U.S.C. 102(e) as being anticipated by the Kalra reference (the previous rejection was under 35 U.S.C. § 103).

On June 26, 2002, the Applicants filed Remarks (erroneously indicated as an Amendment) under 37 C.F.R. § 1.111.

On September 6, 2002, a Final Office Action was mailed, again allowing claims 2-8 and 28, while rejecting claims 1, 10-21, 23-27 and 29-32 under 35 U.S.C. § 102(e) over the Kalra reference.

III. STATUS OF AMENDMENTS

No amendments have been made to the claims.

IV. SUMMARY OF THE INVENTION

The Applicants' invention is described by a method, apparatus for transmitting a data segment in a data stream using a write module which implements a selected one of a plurality of versions of a streaming protocol wherein each subsequent version of the streaming protocol is additive to a previous version. The method comprising the steps of: (a) outputting a first stream of data according to a first version of the streaming protocol; (b) sequentially appending additional streams of data to the first stream of data according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol; and (c) delimiting the data segment in the data stream using begin and end tags.

V. ISSUES PRESENTED FOR REVIEW

Whether claims 1, 10-21, 23-27 and 29-32 are unpatentable under 35 U.S.C. § 102(e) over the Kalra reference

VI. GROUPING OF CLAIMS

The rejected claims do not stand or fall together. Each claim is independently patentable.

VII. ARGUMENT

In paragraph 2, the Office Action rejected claims 1, 10-21, 23-27, 29-32 under 35 U.S.C. § 102(e) as being anticipated by Kalra et al., U.S. Patent No. 5,953,506 (Kalra). Applicants respectfully traverse this rejection.

With Respect to Claims 1, 19, and 29: Claim 1 recites:

(a) outputting a first stream of data according to a first version of the streaming protocol;
(b) sequentially appending additional streams of data to the first stream of data according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol; and
(c) delimiting the data segment in the data stream using begin and end tags.

According to the Office Action, Kalra teaches a method of transmitting a data segment in a stream using a write module of the type which implements one of a plurality of versions of a streaming protocol [and] outputting a first stream of data according to a first version of the streaming protocol as described below:

It is, therefore, an object of the present invention to provide a method and apparatus for reproducing sounds and/or images with a resolution that is optimized to the capabilities of the client computer that is decoding previously encoded sounds and/or images.

It is also an object of the present invention to provide a method and apparatus for encoding digital data representing sounds and/or images as base streams and additive streams of digital data.

It is another object of the present invention to provide a method and apparatus for transmitting base streams and a desired number of additive streams of digital data from a stream server to a client computer based on a profile obtained from the client computer.

It is a further object of the present invention to provide a method and apparatus for decoding base streams and additive streams of digital data to allow for accurate reproduction of sounds and images.

It is a further object of the present invention to provide a method and apparatus that allows for variation in resolution of different media forms so that the quality of a media form such as sound can be increased at the expense of the quality of another media form, such as picture image, according to the desires of the user.

It is a further object of the present invention to provide a method and apparatus that allows minimal processing by the server to achieve the objects recited above.

In order to obtain the objects recited above, among others, the present invention provides an apparatus and method for encoding, storing, transmitting and decoding multimedia information in the form of scalable, streamed digital data. A base stream containing basic informational content and subsequent streams containing additive informational content are initially created from standard digital multimedia data by a transcoder. Client computers, each of which may have different configurations and capabilities are capable of accessing a stream server that contains the scalable streamed digital data. Each different client computer, therefore, may access different stream combinations according to a profile associated with each different client computer. Thus, the streams accessed from the server are tailored to match the profile of each client computer so that the best combination of streams can be provided to

maximize the resolution of the 3D, audio and video components. Since different stream combinations can be accessed, this advantageously allows for the various combinations of content and resolution that are tailored to match that of the specific client computer. If desired, however, the profile can be further adapted to increase the resolution of certain characteristics, such as sound, at the expense of other characteristics, such as video. (col. 1, line 66 - col. 2 line 50)

The Office Action also indicates that Kalra teaches sequentially appending additional data streams of data to the first data stream according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol as follows:

The present invention provides an apparatus and method for encoding, storing, transmitting and decoding multimedia information in the form of scalable, streamed digital data. A base stream containing basic informational content and subsequent streams containing additive informational content are initially created from standard digital multimedia data by a transcoder. Client computers, each of which may have different configurations and capabilities are capable of accessing a stream server that contains the scalable streamed digital data. Each different client computer, therefore, may access different stream combinations according to a profile associated with each different client computer. Thus, the streams accessed from the server are tailored to match the profile of each client computer so that the best combination of streams can be provided to maximize the resolution of the 3D, audio and video components. (Abstract)

It has been found that the present invention can be most easily implemented if a virtual channel for each different type of multimedia is generated. Thus, if only audio and video is being transmitted, two virtual channels, having bandwidth split between them, are needed. However, if audio, video and 3D are all being transmitted, three virtual channels, having bandwidth split between them, are needed. Such virtual channels allows for independent operation of encoders and adaptive stream processors as described hereinafter with respect to the adaptive servers, as well as independent operation of decoders on the client computer. Synchronization can take place through the use of a master clock or be based upon using an audio signal as a master clock. (col. 4, lines 33-46)

... sequence start code, in step 182 there is next searched for the MPEG picture start code, since the codes prior to that are not needed for generation of the .SIGMA.1-.SIGMA.7 additive adaptive streams. Thereafter, in step 184, an adaptive stream picture start code, which corresponds to that specific additive adaptive stream (one of $\sum$1-$\sum$7) is written. At that time, a temporal reference that identifies which picture in the group that this particular picture corresponds to is also written. Step 185 follows and a memory allocation for adaptive stream picture header information is made. With reference to FIG. 7C, this information is identified as information 154A, more specifically the next picture pointer and drop frame code. Further explanation of how the next picture pointer and drop frame code are obtained and inserted into this allocated memory will be described hereinafter with reference to FIG. 9C (col. 10, lines 1-17)

The Kalra reference teaches sequentially appending additive data streams (ostensibly for additional resolution) of the same protocol into a single segment. The system described in Kalra can be used with different formats (e.g. MPEG and WAV), but it cannot be used with different protocols within the same data segment.

Kalra teaches transmitting a data stream with additive components of increasing resolution. Kalra does not address, nor does it permit the use of different protocols within data segments. And why should it? The focus of the Kalra reference is transmitting data of differing resolution to

computer systems that can utilize the additional resolution. Nowhere does the Kalra reference even remotely suggest that the disclosed method be used with different protocol versions. In fact, the protocol used in the preferred embodiment of the Kalra reference (MPEG encoding) is quite detailed in application and utterly incompatible with non MPEG-compliant coding techniques.

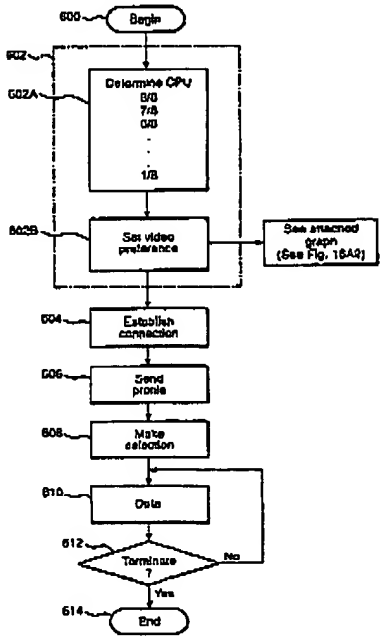
The Final Office Action responded to the foregoing by noting that the claim language did not teach (does not recite?) different protocols. Plainly, claim 1 recites different protocol versions.

Finally, the Office Action indicates that the Kalra reference teaches delimiting the data segment in the data stream using begin and end tags as follows:

> *The stream management step 814 using a stream management module is the outgoing interface to the server that sends the stream modification messages determined above to the server. Packetized commands are sent to the server to among other things, STOP or RESUME data associated with a particular object identification, change PRIORITY of the specified type of data for the specified type of object, STOP data for all objects associated with a particular data identification, or START data for all objects associated with a particular data identification.* (col. 25, lines 39-47).

and, in FIG. 16A1, reproduced below:

Fig. 16A1



The foregoing text discloses the transmission of packetized commands ... not begin and end tags. The Applicants do not understand how FIG. 16A1 is relevant at all.

For all of the foregoing reasons, the Applicants respectfully traverse the rejection of claim 1.

Claims 19 and 29 include limitations analogous to those of claim 1 and are patentable on the same basis.

With Respect to Claim 10: Claim 10 includes the limitations of claim 1 and is patentable on this basis. The Office Action indicates that this limitation can be found in FIG. 16A1 of the Kalra reference (reproduced above), but the Applicants cannot ascertain how FIG. 16A1 can be interpreted as such.

With Respect to Claims 11 and 23: Claim 11 recites:

> *determining whether the data segment is stored in a current context for the data stream;*
> *if so, transmitting an alias tag in lieu of the data segment; and*
> *if not, storing the data segment in the current context.*

According to the Office Action, these features are disclosed in the Kalra reference in FIG. 16A1 and as recited below:

> *The stream management step 814 using a stream management module is the outgoing interface to the server that sends the stream modification messages determined above to the server. Packetized commands are sent to the server to among other things, STOP or RESUME data associated with a particular object identification, change PRIORITY of the specified type of data for the specified type of object, STOP data for all objects associated with a particular data identification, or START data for all objects associated with a particular data identification.* (col. 25, lines 39-47).

The Applicants frankly do not understand how the foregoing text or FIG. 16A1 can be interpreted to disclose the features of claims 11 and 23. Accordingly, the Applicants traverse this rejection.

With Respect to Claim 12: Claim 12 includes the limitations of claim 1, and is patentable on this basis.

With Respect to Claims 13, 24, and 30: According to the Office Action, claim 13 included limitations similar to those of claim 1, except that it includes the step of testing, prior to receiving each additional stream of data, whether an end of the data segment has been detected, and if so, terminating reception of the data segment prior to receiving the addition[al] stream of data according to the selected version as an "inherent" feature in encoding, decoding, storing, and transmitting a

data stream. Although the Office Action expressly indicated it is relying on the inherency doctrine, the Office Action then proceeded to recite 10 different sections of text which purport to disclose these features.

The Applicants reviewed the cited portions of the Kalra reference, and indicated that they could not determine where the testing step was disclosed. The Applicants therefore concluded that the Examiner is relying on the inherency doctrine in rejecting these claims, and traversed.

Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1269(Fed. Cir. 1991). Instead, to establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co.*, 948 F.2d at 1268. In finding anticipation by inherency, the Office Action ignored the foregoing critical principles. The Office Action did not show that the "testing" must be performed (in fact, it need not be ... another reference cited by the Examiner in a previous Office Action used a "brute force" approach wherein the length of the data is separately transmitted, obviating the need for any such testing) or that the "testing" be performed prior to receiving each additional stream of data.

In the Final Office Action, another section (col. 25, lines 38-48) of the Kalra is offered as disclosing the step of *testing, prior to receiving each additional stream of data, whether an end of the data segment has been detected, and if so, terminating reception of the data segment prior to receiving the additional stream of data according to the selected version.* It is shown as follows:

Thus, as shown in FIG. 26, based on previous frame statistics, it is determined as to what the new priorities of different components in the scene should be, whether to add or remove vertices, change rendering modes such as flat shaded, gouraud shaded, phong shaded, gouraud lighting model, phong lighting model, texturing enable disable, and resolution of texturing, or increase or decrease viewport size, i.e. the size of the window in which the frame is rendered. Thus, a determination can be made whether and how to render each different visible object and, therefore, what data will be needed for the next frame that will be rendered. Based upon the level of detail evaluated, two actions result. One, control messages to be sent to the server are determined that modify the relative rate of data transmission, both overall as well as for each object. Second data from the data dictionary 802 is merged into the current frame data buffer 804 so that the next frame can be rendered.

The stream management step 814 using a stream management module is the outgoing interface to the server that sends the stream modification messages determined above to the server. Packetized commands are sent to the server to among other things, STOP or RESUME data associated with a particular object identification, change PRIORITY of the specified type of data for the specified type of object, STOP data for all objects associated with a particular data identification, or START data for all objects associated with a particular data identification.

Other than by the use of impermissible hindsight reconstruction, the Applicants are at a loss to explain how the foregoing can be interpreted to fairly teach the above features recited in claim 13.

Claims 24 and 30 are patentable for the same reasons.

With Respect to Claims 14 and 25: Claim 14 recites:

if the end of the data segment has not been detected upon receiving the additional stream of data according to the selected version, disregarding any remaining data in the data segment.

According to the Office Action, this feature is disclosed as follows:

Overall operation of the adaptive stream server will now be described with respect to FIG. 15A. Once the adaptive stream server receives a profile from the user, in step 550, it uses that information, as well as other information described hereinafter, to make a determination of which streams to transmit in a step 552. Once this determination is made, streams are actually transmitted in a step 554, as long as the profile is not updated, as will be explained further hereinafter, or there is no indication that there is an end of session, as depicted in FIG. 15A by step 556, transmission will continue. If an end of session is depicted, the end of the session will occur as indicated by step 568.

The foregoing indicates what happens if an end of session is detected, not end of data. Further, there is no teaching to disregard data segments if the end of the data segment has not been detected upon receiving the additional stream of data.

For the foregoing reasons, the Applicants respectfully traverse the rejection of claim 14.

Claim 25 recites features analogous to those of claim 14 and is patentable for the same reasons.

With Respect to Claim 15: According to the Office Action, the Kalra reference discloses storing the data segment in a current context, including any disregarded data in a number of locations in the specification. The Applicants have reviewed these passages and cannot determine where such disclosure might be found. Further, claim 15 includes the limitations of claim 14 and 13 and is patentable on this basis alone.

With Respect to Claims 16, 20, and 26: Claims 16, 20, and 26 include the limitations of claim 13 and are patentable on this basis.

With Respect to Claims 17 and 21: In rejecting claims 17 and 21, the Office Action improperly relies on the inherency doctrine. Accordingly, the Applicants traverse this rejection.

With Respect to Claim 18: Claim 18 recites:

receiving an object type for the data segment; and
allocating and initializing an object based upon the object type to build the object from the streams of data in the data segment.

According to the Office Action, these features are disclosed in FIG. 22 , which is reproduced below:

Object ID	Type	Data Pointer	Priority
10C	Geometry	xABCD04	...
11C	Texture	x3159BC	
13C	Material	xABC234	

While the foregoing discloses the use of object IDs, types, and data pointers to objects, the Applicants do not see where the foregoing discloses allocating and initializing an object based on the object type. Accordingly, the Applicants traverse this rejection.

With Respect to Claims 31 and 32: The Office Action indicates that the limitations of claims 31 and 32 can be found in FIG. 16A1 of the Kalra reference. The Applicants respectfully disagree, and traverse this rejection as well.

VIII. DEPENDENT CLAIMS

In addition to the foregoing, dependent claims 2-8, 10-12, 14-18, 20-21, 23, 25-27 and 31-32 incorporate the limitations of their related independent claims, and are therefore patentable on this basis. Accordingly, the Applicants respectfully request that these claims be allowed as well.

IX. CONCLUSION

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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